

first to leave the Domain and the last to return. They are expert divers, and readily dive when molested by other ducks.

*Fuligula novæ-zealandiæ*, Steph. (New Zealand Scaup).

A few pairs of this sociable little duck inhabit the lakes here every winter. They associate with the mallards and domestic ducks, and when resting leisurely on the water's edge permit visitors to approach them very closely. They are gentle and slow in their habits, and at all times are beautiful objects when seen consorting peacefully with the other ducks inhabiting the lakes.

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ART. XIX.—On *Virgularia gracillima* in *Lyttelton Harbour*.

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[Read before the Philosophical Institute of Canterbury, 6th May, 1896.]

ON 22nd March, 1896, when dredging in the Lyttelton Harbour from the yacht of my colleague Professor Scott, we obtained about a dozen specimens of a small *Virgularia* from a shallow bottom of very soft tenacious mud. The species proved on examination to be Koelliker's *Virgularia gracillima*,\* of which a single fragment only was obtained by the "Challenger" in Queen Charlotte Sound, and which has not since been recorded.

As this is an exceptionally interesting species, and so far very imperfectly known, it may be desirable to quote Koelliker's original description before adding my own supplementary notes. The description runs as follows:—

"*Virgularia gracillima*, n. sp. (pl. iii., fig. 11).

"A fragment of a *Virgularia* may be so named provisionally, as it seems to differ from all known species.

"Pinnules very small, about 0.85mm. high, and 1.1mm. distant from each other.

"Polyps four on each pinnule, without well-marked cells.

"Rhachis small, with a breadth of 0.48 to 0.51mm. in the middle part, and of 0.62 in the region of the undeveloped pinnules.

"Zooids—(?).

"Axis round, yellow, 0.42mm., large in the lowest part of

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\* "Challenger: *Pennatulida*," p. 10, pl. iii., fig. 11.

the rhachis, with the typical well-developed radiating fibres. Length of the whole fragment, 77·5mm.

“*Habitat.*—Station 167a, Queen Charlotte Sound, near Long Island, New Zealand. Depth, 10 fathoms. Mud. June 27, 1874.”

All the specimens obtained from Lyttelton Harbour are smaller than the “Challenger” fragment, the largest, which, however, is imperfect above and below, measuring only 60mm. in length. Fortunately, however, one specimen is quite perfect, a condition very unusual in *Virgularia*. This specimen is 45mm. long. The length of the rhachis, or polyp-bearing upper portion, is about twice that of the stalk, or lower portion without polyps, although it is difficult to say exactly where the stalk ends and the rhachis begins, as the lowest polyps are merely minute buds. Both stalk and rachis are straight. The stalk is about 1mm. thick in the middle, and ends below in a thin-walled oval bulb. The greatest diameter of the rhachis, together with the pinnules, is 1·5mm.

Most of the pinnules contain four polyps, but the number varies somewhat, especially in some specimens. In the middle and upper parts of the rhachis the pinnules alternate with one another and overlap in pairs on the dorsal aspect. In the lowest part of the rhachis, where the polyps are first appearing as close-set transverse rows of minute buds, the young pinnules thus formed are opposite to one another. At the apex of the rachis the pinnules become smaller and the polyps fewer until they are finally represented by a few minute warts.

The slender calcareous axis is very sharply recurved at its lower end, and runs up again through the stalk for a little distance nearly parallel with its former course, thus forming an oblique loop, which is filled by a thin fibrous membrane stretched between the descending and ascending limbs. In a specimen dissected the lowest part of the loop was placed at a considerable distance from the end of the stalk, the bulbous dilatation lying below it.

There are no spicules.

The living colony is nearly colourless. Spirit specimens show a rather conspicuous longitudinal groove along the ventral surface of the rhachis.